

**SCHEME FOR
SITE SPECIFIC COMPENSATORY
AFFORESTATION SCHEME**

OVER

**5.0 Ha OF DEGRADED REVENUE FOREST LAND
IDENTIFIED IN VILLAGE BAHALBEDA UNDER
ATHAMALLIK TAHASIL AND ATHAMALLIK
FOREST DIVISION OF ANUGUL DISTRICT**

FOR

**CONSTRUCTION OF 132 KV S/C (2 Conductor) on DC
tower from existing 132/33 KV Grid Sub-Station Boinda of
OPTCL to 132/25 KV RTSS Boinda over a length of 3.236
Kms.**

SUITABILITY CERTIFICATE

Certified that 5.00 Ha. of Revenue Forest and Non-Forest land identified in village Bahalbeda of Bamur Range under Athmallik Tahasil of Athmallik Forest Division of Angul District is suitable for the purpose of Compensatory Afforestation in Block model @1000 plants per ha in lieu of Forest Land over 3.940 Ha. to be diverted for construction of 132 KV S/C (2 Conductor) on DC Tower from the existing 132/33 KV Grid Sub-station Boinda of OPTCL to 132/25 KV RTSS Boinda.


Divisional Forest Officer,
Athamallik Division
Divisional Forest Officer,
Athamallik Division

JOINT VERIFICATION & SUITABILITY CERTIFICATE

JOINT VERIFICATION REPORT OVER AN AREA OF 5.00 HA OR 12.36 AC NON FOREST GOVERNMENT LAND / REVENUE FOREST LAND IN VILLAGE BAHALBEDA OF ATHAMALLIK TAHSIL, DONE BY REVENUE AND FOREST OFFICIALS WITH USER AGENCY FOR RAISING COMPENSATORY AFFORESTATION FOR PROCESSING OF DIVERSION PROPOSAL FOR CONSTRUCTION OF 132 KV RTSS BOINDA LINE ANGUL DISTRICT.

1. Date of Joint Verification :
2. Situation : Bahalbeda Revenue Village.
3. Type of Land : Jungle-II & Patita.
4. Description of Area : Land Schedule and Map enclosed.
5. Category : Kissam – Plot No. 55 (Patita) & Plot No.56(P)-Jungle-II
6. Proposed Area : Ac. 12.36 or 5.00 Ha.
7. Soil : This is good depth of Soil.
8. Feasibility :

- I. Certified that the above mentioned non forest government land/revenue forest land is a compact patch having adequate soil depth suitable for compensatory Afforestation (ANR Plantation) with other forest activities as per the scheme.
- II. The land is free from encroachment and encumbrances.
- III. The land is not allotted previously for any other purpose.
- IV. The land is not covered under DLC report.
- V. The land is not covered under 4(I) Notification.
- VI. The prescribed RCC pillars have to be posted on the demarcated boundary of each side by the User Agency.

Kale
Deputy General Manager (Elect)
EHT Construction Division
OPCL, ANGUL

Behar
25/1/18
Revenue Inspector
Tusar

Jan
25/1/18
Forest Range Officer
Bamur Range

Countersigned
S. Deb
08/02/18
Additional Tahasildar
ATHMALLIK

S. Singh
Divisional Forest Officer
Athamallik Division

Detailed scheme for Compensatory Afforestation to be carried out over 5.0 ha of Degraded Revenue Forest Land Identified in Village Bahalbeda under Athamallik Tahasil and Athamallik Forest Division of Angul District in lieu of forestland to be diverted for construction of 132 KV S/C (2 Conductor) on DC Tower from the existing 132/33 KV Grid Sub-station Boinda of OPTCL to 132/25 KV RTSS Boinda over a length of 3.236 Kms..

INTRODUCTION:

The Govt. of Odisha, Dept. of Energy vide Gazette Notification dated 09.03.2006 formed a Company named as Odisha Power Transmission Corporation Ltd. (OPTCL) having its registered Office at Bhoinagar, Bhubaneswar-751022, is a Government of Odisha Company engaged in the business of India – State Transmission of Electricity. The present project of OPTCL is to contract 132 KV S/C (2 Conductor) on DC tower from the existing 132/33 KV Grid substation Boinda of OPTCL to 132/25 KV RTSS Boinda (Line distance 3.236 Kms). The aim of this Project is to facilitate the Rail Electrification of Boinda & adjoining area in Angul Dist. in particular and overall development of Odisha State in general. The Project for construction of 132 KV S/C line passes through Jamunali, Parbatipur and Kadalimunda villages under Kishore Nagar Tahasil of Angul Dist. and Athamallik Forest Division. The project includes 9.730 Ac or 3.940 Ha. of Forest Land, 11.370 Ac or 4.601 Ha of Private Non-forest Land and 0.484 Ac or 0.196 Ha. of Govt. Non-forest land. The project is depicted in Sol Toposheet No. F 45 S 5 Longitude E84°46'27.74381" and Latitude N20°54'39.45349".

LAND INVOLVED

Tahasildar Athamallik has identified 5.00 ha of Revenue forest land in village Bahalbeda under Athamallik Tahasil and Angul District for this purpose. The Revenue forest land is at a distance nearly 35 km from Athamallik Township and 10 km from Bamur Range. An all weather road exists right up to the site selected for the Comp. Affn.

Land Schedule

Sl. No	Name of the Village	Khata No	Plot No	Area(in Ac)	Area(in Ha)
1	Bahalbeda	46	55	6.10	2.477
2	-do-	-do-	56(P)	6.26	2.533
Total				12.36	5.000

DESCRIPTION OF EXISTING VEGETATION

The Revenue forest land identified for this project for raising Comp. Affn. is fairly open having Bushy undergrowth & forest having less economic species. The Canopy density varies from 0.2 to 0.3 in different places of the site identified and hence requires minimal site clearance before taking up plantation activity. The site has been selected as per the new guideline of MoEF & CC dated 08.11.2017 and has been jointly verified by Revenue and Forest Deptt. officials in the presence of User Agency.

GPS Reading Surveyed points:

Co-ordinates of CA AREA				
Pillar Id	Easting	Northing	Longitude	Latitude
1	226539.013	2314233.1	84°22'15.825"	20°54'29.688"
2	226573.039	2314212.709	84°22'17.013"	20°54'29.043"
3	226608.497	2314191.461	84°22'18.251"	20°54'28.372"
4	226643.951	2314190.39	84°22'19.478"	20°54'28.356"
5	226677.818	2314177.478	84°22'20.657"	20°54'27.954"
6	226686.073	2314153.348	84°22'20.956"	20°54'27.175"
7	226716.306	2314101.066	84°22'22.031"	20°54'25.492"
8	226709.559	2314075.931	84°22'21.811"	20°54'24.672"
9	226699.373	2314066.273	84°22'21.465"	20°54'24.353"
10	226670.507	2314041.773	84°22'20.481"	20°54'23.541"
11	226632.195	2314042.831	84°22'19.155"	20°54'23.555"
12	226578.877	2314052.654	84°22'17.306"	20°54'23.846"
13	226543.952	2314060.724	84°22'16.093"	20°54'24.089"
14	226533.765	2314078.319	84°22'15.731"	20°54'24.656"
15	226530.095	2314134.266	84°22'15.573"	20°54'26.472"
16	226525.784	2314196.058	84°22'15.388"	20°54'28.477"
17	226279.186	2313955.097	84°22'06.997"	20°54'20.516"
18	226324.008	2313949.557	84°22'08.550"	20°54'20.360"
19	226379.001	2313943.678	84°22'10.456"	20°54'20.198"
20	226435.195	2313938.185	84°22'12.402"	20°54'20.049"
21	226490.683	2313932.76	84°22'14.324"	20°54'19.903"
22	226546.853	2313927.269	84°22'16.269"	20°54'19.754"
23	226597.684	2313922.3	84°22'18.030"	20°54'19.620"
24	226641.209	2313918.046	84°22'19.537"	20°54'19.505"
25	226698.524	2313911.653	84°22'21.523"	20°54'19.328"
26	226677.304	2313909.192	84°22'20.790"	20°54'19.237"
27	226666.324	2313874.122	84°22'20.431"	20°54'18.091"
28	226671.107	2313865.573	84°22'20.601"	20°54'17.816"
29	226612.084	2313868.404	84°22'18.558"	20°54'17.877"
30	226566.278	2313870.601	84°22'16.973"	20°54'17.923"
31	226525.192	2313872.572	84°22'15.551"	20°54'17.965"
32	226480.36	2313874.723	84°22'14.000"	20°54'18.012"
33	226428.96	2313877.189	84°22'12.221"	20°54'18.064"
34	226384.273	2313871.196	84°22'10.679"	20°54'17.846"
35	226343.155	2313865.681	84°22'09.260"	20°54'17.645"
36	226337.394	2313866.876	84°22'09.060"	20°54'17.680"
37	226304.025	2313868.551	84°22'07.905"	20°54'17.717"
38	226271.513	2313870.183	84°22'06.780"	20°54'17.753"
39	226275.136	2313910.278	84°22'06.883"	20°54'19.058"

1. TOPOGRAPHY & SOIL

The site is shown in Topo sheet No. 73 D/5. The soil type occurring in the area is shallow, somewhat excessively drained, gravelly loamy soils on moderately hill slopes with loamy surface, susceptible to erosion, associated with deep and well drained soil at certain places.

2. CLIMATIC CONDITION

The climatic condition of the area supports growth of dry deciduous forest and experiences an average annual rain fall of 75 – 100 cm. and maximum temperature of 45°C. The summer season is from March to June, winter from November to February and rainy season is from July to September.

3. OBJECTIVE OF THE SCHEME

It is a mandatory requirement under the provision of F.C. Act, 1980 Apart from that other ecological aspects i.e. to be addressed by this scheme are as follows.

- (i) Improving the condition of existing forest through afforestation activities by planting indigenous forest species available in the nearby forests.
- (ii) To enhance soil productivity through soil and moisture conservation measures.
- (iii) To stabilize the ratio between water run-off during rainy season and that of dry season and enhance the land of groundwater aquifer by augmenting water seepage through the soil.

4. PLANTATION MODEL

Block Plantation with 1000 plants per ha. will be taken up in the site followed by maintenance of plantation for 10 years as per the requirement stated in F.No. 11-168/2009-FC Date 14.2.2012 of MoEF, Govt. of India.

5. DETAIL OF YEAR WISE BREAK UP OF REQUIREMENTS OF FUNDS IS AS UNDER

COST NORM FOR BLOCK PLANATION @ 1000 PLANTS PER HECTARE						
SL NO	ITEMS OF WORK	Preferable period of Execution	Person Days	Labour cost@Rs.213. 50/-per day	Material Cost(Rs)	Total cost(Rs)
1	2	3	4	5	6	7
0th year (Advance work) pre-planting operation						
1	Survey, demarcation and pillar posting	Nov/Dec	2	427	0	427
2	Site preparation	Nov/Dec	8	1708	0	1708
3	Alignment and stacking of pits	Jan/Feb	2	427	0	427
4	Digging of pits(30 cm cube)	Feb/Mar	25	5337.5	0	5337.5

COST NORM FOR BLOCK PLANATION @ 1000 PLANTS PER HECTARE

SL NO	ITEMS OF WORK	Preferable period of Execution	Person Days	Labour cost@Rs.213.50/-per day	Material Cost(Rs)	Total cost(Rs)
1	2	3	4	5	6	7
5	Nursery cost 96 months old seedling)part@Rs.9.45/- seeding (Rs.6.67 in 0th year +Rs.2.78 in 1st year) for 1100 seedlings(1000+100)	Jan-Mar	27.5	5871.25	1837	7708.25
	Total		64.5	13770.75	1837	15607.75
1st year/planting year						
6	Nursery cost (6 months old seedling) balance@ Rs.2.78 for 1100 seedlings.	Apr-Jul	13	2775.5	458	3233.5
7	Carriage & planting, casualty replacement and application of insecticides, manure etc.	Jul/Aug	13	2775.5	0	2775.5
8	Cost of insecticide and fertilizer (a) NPK@50gms/plant as basal dose=80kg@Rs.24/-per kg=Rs.1200.00. (b)Urea @70gms/plant in two subsequent doses@Rs.6/- per kg=Rs.420/- (c) Granular insecticide(Themet,Forate etc.)@5 gms/plant@ Rs.80/-per kg=Rs.400/-		0	0	2020	2020
9	1st weeding(complete weeding)	Aug/Sep	5	1067.5	0	1067.5
10	Manuring urea 35 gm	Aug/Sep	4	854	0	854
11	2nd weeding(complete weeding)	Sep/Oct	4	854		854
12	Soil working(50cms.radius around plants)& manuring urea 35gms per plant	Sep/Oct	5	1067.5	0	1067.5
13	soil conservation measures in the form of staggered trenches of size 2m x 0.5m x0.5m@ 30 nos. per ha	Sep/Oct	10	2135	0	2135
14	Fire line tracing & Inspection path	Feb/Mar	3	640.5	0	640.5
15	watch & ward	Aug-Mar	7	1494.5	0	1494.5
	Total		64	13664	2478	16142
2nd year Maintenance						
16	Casualty replacement(10%) with nursery cost	Jul/Aug	2.5	533.75	945	1478.75
17	Weeding(complete weeding)	Sep/Oct	4	854		854
18	Cost of fertilizer(NPK@ 70 gms/plant for 1000 plants)(Rs.24/-per kg & insecticide@5gms/plant for 100 plants 500gms@Rs.80/- per Kg)		0	0	1720	1720
19	soil working (50 cms. Radius around plants)	Oct/Nov	5	1067.5	0	1067.5
20	Application of fertilizer & insecticide	Sep/Oct	2.5	533.75	0	533.75
21	Fire line tracing(2 m. wide fire line over 400 m long	Feb/Mar	3	640.5	0	640.5

COST NORM FOR BLOCK PLANATION @ 1000 PLANTS PER HECTARE						
SL NO	ITEMS OF WORK	Preferable period of Execution	Person Days	Labour cost@Rs.213.50/-per day	Material Cost(Rs)	Total cost(Rs)
1	2	3	4	5	6	7
22	watch & ward	Apr-Mar	15	3202.5	0	3202.5
	Total		32	6832	2665	9497
3rd year Maintenance						
23	weeding and application of fertilizer	Aug/Sep	5	1067.5	0	1067.5
24	Cost of fertilizer(NPK@ 50gms/plant)@Rs.24/- per kg		0	0	1200	1200
25	soil working(50cms.radius around plants)& application of fertilizer	Oct/Nov	5	1067.5	0	1067.5
26	Fire line tracing (2 m. wide fire line over 400 m length) & cultural operation	Feb/Mar	3	640.5	0	640.5
27	watch & ward	Apr-Mar	15	3202.5	0	3202.5
	Total		28	5978	1200	7178
4th year Maintenance						
28	Fire line tracing (2 m. wide fire line over 400 m length) & cultural operation	Feb/Mar	3	640.5	0	640.5
29	watch & ward	Apr-Mar	15	3202.5	0	3202.5
	Total		18	3843	0	3843
5th year Maintenance						
30	Fire line tracing (2 m. wide fire line over 400 m length) & cultural operation	Feb/Mar	3	640.5	0	640.5
31	Watch & ward	Apr-Mar	15	3202.5	0	3202.5
	Total		18	3843	0	3843
6th year maintenance						
32	Fire line tracing (2 m. wide fire line over 400 m length) & cultural operation	Feb/Mar	3	640.5	0	640.5
33	watch & ward	Apr-Mar	15	3202.5	0	3202.5
	Total		18	3843	0	3843
7th year Maintenance						
34	Fire line tracing (2 m. wide fire line over 400 m length) & cultural operation	Feb/Mar	3	640.5	0	640.5
35	Watch & ward	Apr-Mar	15	3202.5	0	3202.5
	Total		18	3843	0	3843
8th year Maintenance						
36	Fire line tracing (2 m. wide fire line over 400 m length) & cultural operation	Feb/Mar	3	640.5	0	640.5
37	Watch & Ward	Apr-Mar	15	3202.5	0	3202.5
	Total		18	3843	0	3843
9th year Maintenance						
38	Fire line tracing (2 m. wide fire line over 400 m length) & Cultural operation	Feb/Mar	3	640.5	0	640.5
39	Watch & Ward	Apr-Mar	15	3202.5	0	3202.5
	Total		18	3843	0	3843
10th year Maintenance						

COST NORM FOR BLOCK PLANATION @ 1000 PLANTS PER HECTARE

SL NO	ITEMS OF WORK	Preferable period of Execution	Person Days	Labour cost@Rs.213.50/-per day	Material Cost(Rs)	Total cost(Rs)
1	2	3	4	5	6	7
40	Fire line tracing (2 m. wide fire line over 400 m length) & cultural operation	Feb/Mar	3	640.5	0	640.5
41	Watch & Ward	Apr-Mar	15	3202.5	0	3202.5
	Total		18	3843	0	3843
	Grand Total		314.5	67145.75	8180	75325.75

Abstract

Year	Person Days	Labour (Rs)	Material (Rs)	Total Cost (Rs)
0 th Year	64.5	13770.75	1837	15607.75
1 st Year	64	13664	2478	16142
2 nd Year	32	6832	2665	9497
3 rd Year	28	5978	1200	7178
4 th Year	18	3843	0	3843
5 th Year	18	3843	0	3843
6 th Year	18	3843	0	3843
7 th Year	18	3843	0	3843
8 th Year	18	3843	0	3843
9 th Year	18	3843	0	3843
10 th Year	18	3843	0	3843
TOTAL	314.5	67145.75	8180	75325.75

Rs. 75325.75x 5.0 ha =

Rs.3,76,628.75

The site being a degraded forest Additional 25% cost for Soil Moisture Conservation like Gully Plugging, Check Dams, Contour bonds, Nallah bunding, vegetative bunds etc. and removal of weeds will improve the vegetative composition and ultimately converge with the natural adjoining forests.

Rs. 94,157.19

Sub Total

Rs.4,70,785.94

5. Technical details:- Technical details of Compensatory Afforestation Scheme are as follows:

a) General Details :

Survey & Demarcation of boundary:

The identified area will be surveyed by GPS and the area will be demarcated with RCC pillars. Each pillar will be embedded two feet inside the ground and project 3 feet above the ground and will bear the Pillar number and GPS location and an arrow pointing towards the next pillar. The pillar numbering will be done in a clock wise manner starting from the 1st pillar.

b) Planting and post-planting:

Block Plantation shall be taken up with 1000 plants per hectares. Alignment and pit marking be done carefully in slopes so that the horizontal distance between plants in a row remains 2.5 mtrs. Size of pits will be 30 cm X 30 cm X 30 cm. All post planting measures like casualty replacement, soil working, weeding manuring, fire protection etc. will be undertaken. These plots should be demarcated in the field before digging of pits.

While taking up plantation, the following points shall be taken up for consideration: -

- Care to be taken to raise healthy plantable seedlings comprising of indigenous species of minimum 60 cm height. 10% extra seedlings are to be raised for replacement of casualty.
- Pitting will commence during Feb-March i.e., when soil is loose. If possible the soil of upper portion and lower portion of pit are to be placed separately in specific direction so that while planting the pits will be filled with top-soil first.
- Planting will be done on the onset of monsoon to get full benefit of monsoon rain.
- Fertilizer and insecticides will be applied at the time of planting carefully by mixing with top-soil so that the roots of seedlings do not come in direct contact with the fertilizer.
- In case of any mortality of planted seedlings, casualty replacement with good seedlings will be carried as soon as possible for better success rate.
- Circular weeding in proper time will be done around the planted seedlings.
- All works are to be done in time as Plantation manual, 1977.

c) Species:

Although indigenous species are to be preferred in the plantation, considering adverse soil & moisture conditions we may go for hardy species wherever required to ensure good survival percentage. From wildlife requirement point of view, plantation of fruit bearing and fodder species will also be given due importance. 5% of the total species to be planted will constitute Bamboo. Considering the topography, soil and moisture availability of the plantation area, the following species will be planted

Sl No	Name of species	Common name	Remarks
1	<i>Tectona grandis</i>	Teak	
2	<i>Emblica officinalis</i>	Amla	
3	<i>Dalbergiasissoo</i>	Sissoo	In lower areas with good soil depth
4	<i>Gmelina arborea</i>	Gambhari	In lower areas with good soil depth
5	<i>Dendrocalamus strictus</i>	Salia bamboo	In lower areas with good soil depth healthy seedlings from rhizomes may be planted
6	<i>Mangifera indica</i>	Mango	In situ plantation (direct placing of mango stone in planting site) during pre-monsoon may be adopted in few lower areas or where watering can be done during summer
7	<i>Alstonia scholaris</i>	Chhatian	
8	<i>Cassia fistula</i>	Sunari	
9	<i>Pongamia pinnata</i>	Karanja	
10	<i>Anthocephalus cadamba</i>	Kadamba	
11	<i>Terminalia bellirica</i>	Bahada	
12	<i>Bridelia retusa</i>	Kasi	

d) Proposed Monitoring Mechanism:-

The scheme shall be executed by the Divisional Forest Officer, Athmallik Division and all prescribed records are to be maintained. In addition to internal monitoring by Forest Officers of State Government, a Monitoring Committee under item no. 3.4(iii) of consolidated guidelines under F.C Act 1980 issued by MoEF, shall be constituted.

Total cost of the project: The total cost of the project is Rs. 9,25,200.00.

(Rupees Nine lakhs twenty-five thousands two hundred only)

FINANCIAL OUTLAY OF THE SCHEME

Sl. No.	Description	Amount in Rs.
1.	Cost for Planting 1000 plants per Ha. @ Rs 3,76,628.75 for 5.00 Ha	3,76,628.75
2.	Cost for Soil Moisture Conservation work like Gully Plugging, Check Dam, Contour Bonds, Nallah Bonding, Vegetative bunds etc and removal of weeds.	94,157.19
	Total	4,70,785.94
3.	Cost of Infrastructure(To be provided by the User Agency at Project cost)	
	GIS Hardware installation in Division office as per details enclosed(As Annexure-I).	3,00,000.00
	Sub Total	7,70,785.94 OR 7,71,000.00
	Escalation 20%	1,54,200.00
	Grand Total	9,25,200.00

(Rupees Nine lakhs twenty-five thousands two hundred only)

which shall be payable by OPTCL as per demand notice to be issued by D.F.O, Athmallik Forest Division and after receiving due approval from Addl. PCCF, Nodal, office of RCCF & MoEF, Odisha, Bhubaneswar.


Divisional Forests Officer
Athamallik Division
 Divisional Forest Officer
 Athmallik Division